

REMARKS

Claims 1-7, 9-21 and 23-28 are pending in the application.

Claims 1-7, 9-21 and 23-28 have been rejected.

Claims 1, 2, 15, 16, 18-20 and 23-28 have been amended herein.

Claims 1-7, 9-21 and 23-28 remain pending in this application. .

Reconsideration of the claims is respectfully requested.

I. INTERVIEW SUMMARY

An interview was conducted on September 28, 2010 between the Applicant's representative and Examiner Kawsar. The Applicant would like to thank Examiner Kawsar for his time and consideration during this interview.

In the interview, the Applicant's representative and Examiner Kawsar discussed possible amendments to Claims 1, 2 and 15 to overcome the rejections of those claims under 35 U.S.C. § 112 and the rejection of Claim 1 under 35 U.S.C. § 103. Examiner Kawsar also indicated that Claim might be made allowable either by amending to traverse the § 112 rejection or to incorporate the limitations of Claim 2. No agreement was reached as to the patentability of the claims.

II. CLAIM OBJECTIONS

Claim 1 was objected to because of a repeated word. Claim 1 has been amended to address the informality identified in the Office Action. Accordingly, the Applicant respectfully requests that the Examiner withdraw the objection.

III. CLAIM REJECTIONS -- 35 U.S.C. § 112

Claims 1-7, 9-21 and 23-28 were rejected under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter. In response, the Applicant has amended Claims 1, 2 and 15 as shown above.

There are two separate requirements under 35 U.S.C. § 112, second paragraph. MPEP § 2171, p. 2100-216 (8th ed. rev. 8, July 2010). The first is subjective and requires that the claims must set forth the subject matter that the *Applicants* regard as their invention. *Id.* The second is objective and requires that the claims must particularly point out and distinctively define the metes and bounds of the subject matter that will be protected by the patent grant (*i.e.*, whether the scope of the claim is clear to one of ordinary skill in the art). *Id.* The Examiner should explain whether the rejection is based on indefiniteness or on the failure to claim what the Applicants regard as their invention. *Id.* at 2100-212 (*citing Ex parte Ionescu*, 222 U.S.P.Q. 537, 539 (Bd. App. 1984)).

The Office Action asserted that:

- i. Claim 1, line 7 recites "dynamically bundle a subset of said plurality of jobs ... said comparison" it is unclear what constitutes the job comparison with the status (*i.e.* comparing between job status for what? jobs with similar status value? different status value? how are the jobs bundled?). *Office Action mailed June 30, 2010, p. 3.*

In response, the Applicant has amended Claim 1 to recite that the job buffer is configured to dynamically bundle a subset of a plurality of jobs into a task based on an equivalence of a job status of the jobs.

The Office Action also asserted that:

- ii. Claim 15, lines 1-3 recites "executing at least one single program multiple data(SPDM) program, for use with a micro single multiple data(SIMD) unit" but in line 11, recites "allocating task to said micro SIMD unit" it is unclear if the SIMD unit is a intended use of the method or positively requires the SIMD unit to perform the steps of the method claim. Applicant is required to amend the claim to positively

recite the SIMD unit required to perform the steps of the method. *Office Action mailed June 30, 2010, p. 3.*

In response, the Applicant has amended Claim 15 to recite a method including the step of:

in a job buffer, allocating said task to a micro single instruction multiple data (SIMD) unit, wherein said micro SIMD unit is associated with a microprocessor, and said job buffer has an output coupled to an input of said micro SIMD unit.

The Office Action further asserted that the recitation of “capable of” in Claim 2 rendered the claim indefinite. In response, the Applicant has amended Claim 2 to recite “configured to,” rather than “capable of.”

Accordingly, the Applicant respectfully requests that the Examiner withdraw the § 112 rejection of Claims 1-7, 9-21 and 23-28.

IV. CLAIM REJECTIONS -- 35 U.S.C. § 103

Claims 1, 3, 6-7, 9-10 and 13-14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,094,715 to *Wilkinson, et al.* (hereinafter “Wilkinson”) in view of U.S. Patent No. 4,435,758 to *Lorie, et al.* (hereinafter “Lorie”). Claims 4 and 5 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Wilkinson in view of Lorie as applied to claim 1 above, and in view of U.S. Patent No. 6,470,441 to *Pechanek, et al.* (hereinafter “Pechanek”). Claims 11 and 12 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Wilkinson in view of Lorie as applied to claim 1 above, and further in view of “Multi-thread VLIW processor architecture for HDTV decoding” to *Hansoo Kim* (hereinafter “Kim”). The Applicant respectfully traverses the rejections.

In *ex parte* examination of patent applications, the Patent Office bears the burden of establishing a prima facie case of obviousness. MPEP § 2142 (8th ed. rev. 8, July 2010). Absent

such a prima facie case, the applicant is under no obligation to produce evidence of nonobviousness.

Id.

The Office Action asserted that the broadcast and control interface (BCI) in Wilkinson's processor memory element (PME) describes a job buffer as recited in Claim 1. Wilkinson's BCI buffers individual instructions and data items separately (not together) for broadcast to PMEs:

The BCI is the node's interface to the external array controller element and to an array director. The BCI provides common node functions such as timers and clocks. The BCI provides broadcast function masking for each nodal PME and provides the physical interface and buffering for the broadcast-bus-to-PME data transfers, and also provides the nodal interface to system status and monitoring and debug elements.

. . . .

Each PME has a "circuit switched mode" of I/O in which one of its four input ports can be switched directly to ones of its four output ports, without having the data enter the PME main store. Selection of the source and destination of the "circuit switch" is under control of the software executing on the PME. The other three input ports continue to have access to PME main store functions, while the fourth input is switched to an output port.

An additional type of I/O has data that must be broadcast to, or gathered from all PMEs, plus data which is too specialized to fit on the standard buses. Broadcast data can include SIMD commands, MIMD programs, and SIMD data. Gathered data is primarily status and monitor functions. Diagnostic and test functions are the specialized data elements. Each node, in addition to the included set of PMEs, contains one BCI. During operations the BCI section monitors the broadcast interface and steers/collects broadcast data to/from the addressed PME(s). A combination of enabling masks and addressing tags are used by the BCI to determine what broadcast information is intended for which PMEs.

Each PME is capable of operating in SIMD or in MIMD mode in our preferred embodiment. In SIMD mode, each instruction is fed into the PME from the broadcast bus via the BCI. The BCI buffers each broadcast data word until all of its selected nodal PMEs have used it. This synchronization provides accommodation of the data timing dependencies associated with the execution of SIMD commands and allows asynchronous operations to be performed by a PME. (*See col. 24, lines 9-16 and 26-55*).

In contrast, Claim 1 recites an apparatus that includes a job buffer for jobs that are *a combination of a* program (i.e., one or more instructions) *and* an input data-set. Thus, the Applicant respectfully submits that a person of skill in the art would not understand Wilkinson's BCI buffer for individual

instructions and data words, separately, as teaching a buffer for jobs that are a combination of a program and an input data-set, as recited in Claim 1.

Additionally, the Office Action acknowledged that Wilkinson does not teach a job buffer dynamically bundling jobs into a task based on a comparison of job status of the jobs and allocating said task to a SIMD unit. However, the Office Action asserted that Lorie teaches such dynamic bundling, citing the following passage:

However, if as in many data base applications, there is a high degree of contention for resources but the transactions are extremely homogeneous, then a network of synchronous processors working in an SIMD (single instruction multiple data) mode may be indicated. Groups of similar tasks may then be batched and run together through such a processor, synchronization minimizing the interprocessor communication is necessary in order to manage the resource contention. If the task consists of streams of straight line code (no branches), then all that is needed is a special purpose operating system for grouping, loading relevant data, starting and stopping. (*See col. 1, lines 32-45*).

The cited passage thus merely teaches that, prior to execution, streams of straight line code may be recognized in a task and a special purpose operating system used to group tasks, load relevant data, start and stop such streams of code. The Applicant submits that such preprocessing of tasks into blocks of code prior to execution does not teach a person of skill in the art the recited job buffer that *dynamically* bundles jobs *at runtime* into tasks. Moreover, Lorie is silent as to criteria for determining that tasks are “similar” for the purposes of grouping, and thus does not teach bundling jobs into a task based specifically on an equivalence of a job status of the jobs. Accordingly, the teaching of Lorie is in the context of a system that operates differently than the apparatus of Claim 1 and lacks the specificity necessary to anticipate the entire claim limitation. Therefore, a person of skill in the art would have neither motivation nor expectation of success in applying the teaching of Lorie to the system of Wilkinson to achieve the claimed invention, as proposed by the Office Action.

Wilkinson and Lorie fail to describe all the elements of Claim 1. Further, a person of skill in the art would have neither motivation nor reasonable expectation of success in combining the references as proposed by the Office Action. For at least these reasons, independent Claim 1 is patentable over the cited references

The Applicant submits that neither Pechanek nor Kim does anything to overcome the shortcomings of Wilkinson and Lorie. Claims 2-6 and 9-14 depend from Claim 1 and each includes all the elements of Claim 1. Therefore, Claims 2-6 and 9-14 are patentable over the cited references.

Accordingly, the Applicant respectfully requests that the Examiner withdraw the § 103 rejection with respect to Claims 1, 3, 6-7, 9-10 and 13-14.

V ALLOWABLE SUBJECT MATTER

The Office Action stated that Claim 2 would be allowable if it were rewritten to overcome the rejection under 35 U.S.C. 112, second paragraph, and to include all the limitations of the base claim and any intervening claims. As noted above, the Applicant has amended Claim 2 to traverse the § 112, second paragraph, rejection. However, because amended independent Claim 1 is believed to be patentable, the Applicant elects not to rewrite Claim 2 in independent form at this time.

CONCLUSION

As a result of the foregoing, the Applicant asserts that the remaining Claims in the Application are in condition for allowance, and respectfully requests an early allowance of such Claims.

If any issues arise, or if the Examiner has any suggestions for expediting allowance of this Application, the Applicant respectfully invites the Examiner to contact the undersigned at the telephone number indicated below or at *wmunck@munckcarter.com*.

The Commissioner is hereby authorized to charge any additional fees connected with this communication or credit any overpayment to Deposit Account No. 50-0208.

Respectfully submitted,

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